ACC.15
TCT@ACC-i2 | innovation in intervention

A918
JACC March 17, 2015
Volume 65, Issue 10S

Heart Failure and Cardiomyopathies

EFFICACY AND SAFETY OF SHORT COURSES OF LOW-FREQUENCY ELECTRIC MYOSTIMULATION IN PATIENTS HOSPITALIZED FOR DECOMPENSATED CHRONIC HEART FAILURE

Poster Contributions
Poster Hall B1
Sunday, March 15, 2015, 9:45 a.m.-10:30 a.m.

Session Title: Optimizing Device Therapy
Abstract Category: 15. Heart Failure and Cardiomyopathies: Therapy
Presentation Number: 1183-194

Authors: *Viktoria Sviridenko, Maria Poltavskaya, Abram Syrkin, Artem Doletsky, Ilia Giverts, Oxana Dikur, Preventive and Urgent Cardiology, University Hospital N1 I.M.Sechenov First Moscow State Medical U, Moscow, Russian Federation*

Background: to evaluate efficacy and safety of short courses of low-frequency electric myostimulation (EMS) in patients hospitalized for decompensated chronic heart failure (CHF) in early terms of hospital treatment.

Methods: 51 patients (67,7% male, mean age 65,3±3,8 years) hospitalized for deconpensated CHF were enrolled in the study. Patients were randomized into two comparable groups: group 1 of effective EMS (n=28) and group 2 of sham myostimulation (n=23). Besides standard medical treatment in 2-3 days after admission to hospital patients from both groups underwent low-frequency stimulation of skeletal muscles of anterior and posterior surfaces of thigh and shin. The procedure was carried out using electromyostimulator "Stimulus-01" generating bipolar symmetric square-wave electric impulses with pulse duration of 1±0.5 ms at a frequency of 25±1 Hz in cyclic regimen (1±0,1 s - stimulation, 2±0,1 s - rest). Average duration of the procedure amounted 60,0±20,0 minutes in both groups. In group of effective EMS amplitude of the impulses was adjusted individually up to maximally tolerated, in group of sham stimulation - amplitude was minimal. Physical tolerance and quality of life were evaluated at baseline and after treatment using visual-analogous scale (VAS), 6-minute walk test (6-mwt), Duke Activity Status Index (DASI) and Minnesota Living with Heart Failure Questionnaire (MLHFQ).

Results: Patients from group 1 and group 2 showed reliable improvement of well-being according to VAS (from 3,5±1,0 to 7,1±0,8 and from 3,3±0,95 to 7,06±0,77 accordingly) and quality of life according to MLHFQ (from 53,4±7,6 to 35,6±7,8 and from 55,5±7,37 to 46,5±8,3 accordingly); $p<0,05$ for all. Statistically reliable ($p<0,05$) improvement of physical activity according to DASI (from 11,1±4,9 to 18,4±6,9) and 6-mwt (from 202,2±65,9 to 295,9±77,1 m) was observed only in group of effective EMS.

Conclusion: Functional electric stimulation of lower limb skeletal muscles using "Stimulus-01" leads to improvement of physical tolerance and can be safely used in patients with CHF early after decompensation.